

SUPPLEMENTARY DATA

Supplementary Table 1. Care management systems with no measurable effect or a negative effect on optimal diabetes care

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| B1 | A system for tracking laboratory tests until results are available to the clinician. |
| B2 | A system for tracking radiology tests until results are available to the clinician. |
| B3 | Alerts to the doctors about clinically important abnormal laboratory results at the time they are received. |
| B4 | Alerts to the doctors about clinically important abnormal radiology results at the time they are received. |
| B5 | A structured protocol for following up with patients when abnormal test results are identified. |
| B6 | A system to track critical referrals until the consultation report returns to the practice site. |
| C1 | Maintains a registry for diabetes (a list of patients with a particular condition along with associated clinical data for each patient): |
| C5 | Adopted written evidence based standards of care (e.g. clinical practice guidelines) to treat diabetes. |
| C9 | Problem lists to help in managing the care of patients. |
| C10 | Medication lists to help in managing the care of patients |
| C13 | Use its scheduling system to encourage patients to see their personal physician |
| C14 | Diabetes flow sheet completed during visit (e.g., diabetic flow show sheet, paper, or electronic) |
| C18 | Nurse managers to coordinate care for patients with especially complicated conditions |
| C19 | Guideline-based reminders for diabetes services the patient should receive that appear when seeing the patient. |
| C24 | A systematic approach to identify and remind patients with chronic illnesses who are due for testing (e.g., LDL test or dilated eye exam) |
| C25 | A systematic approach to identify and remind patients with chronic illnesses who are due for prescription renewal |
| C26 | A systematic approach to identify and remind patients with diabetes who are due for health services |
| C28 | After visit follow up routinely provided to your patients with chronic illness by someone other than a physician, physician assistant, or nurse practitioner |
| C29 | Individualized patient education and support routinely provided to your patients with chronic illness by someone other than a physician, physician assistant, or nurse practitioner |
| C30 | Follow-up when patients have missed important appointments routinely provided to your patients with chronic illness by someone other than a physician, physician assistant, or nurse practitioner |
| C32 | Guideline based reminders for age appropriate preventive services the patient should receive when seeing the patient. |
| C34 | Guideline based reminders for counseling (e.g., smoking cessation) the patient should receive when seeing the patient: counseling (e.g. smoking cessation) |
| D2 | Systematic process to screen or assess patients for obesity (assessment of BMI) |
| D3 | Systematic process to screen or assess for patients for alcohol and substance abuse |
| D4 | Systematic process to screen or assess for patients for depression |
| D6 | Provide or refer patients to formal support programs to assist in self-management for referring for smoking cessation programs |
| D7 | Provide or refer patients to formal support programs to assist in self-management for substance abuse |
| D9 | Provide or refer patients to formal support programs to assist in self-management for nutrition |
| D10 | Provide or refer patients to formal support programs to assist in self-management for physical activity programs |
| D11 | Provide or refer patients to formal support programs to assist in self-management for asthma |
| D12 | Provide or refer patients to formal support programs to assist in self-management for diabetes |
| D13 | |
| D14 | Provide or refer patients to formal support programs to assist in self-management for depression |
| D15 | Routinely develop individualized self-management plans with goals to encourage patient self-management |
| D16 | Routines provide or review self-monitoring instructions to encourage patient self-management |
| D17 | Routinely provide written materials that explain to the patient the recommended medical care |

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| | guidelines for their illness (for example, guidelines for eye exams for patients with diabetes) |
| D18 | Have systems to encourage patient self-management in diabetes |
| D19 | Routinely use secure email to support self-management for patients and their families |
| D22 | Routinely use and exchange data with patients who have access to their own electronic health record or personal health record to support self-management for patients and their families |
| E2a | Develop care plans to manage care for diabetes |
| E2e | Develop care plans to manage care for medically complex conditions |
| F1 | Have a formal process (i.e., a written plan with a set of procedures and defined endpoints for accountability) for measuring performance for individual physicians or for the practice site. |
| F3 | Conduct or participate in formal quality improvement activities. |
| G2 | Systems to promptly learn when one of your patients have been discharged from a hospital. |

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Supplementary Table 2. Diabetes ICD code value sets

| ICD-9 | |
|----------|--|
| 250.00 | DMII WO CMP NT ST UNCNTR |
| 250.01 | DMI WO CMP NT ST UNCNTRL |
| 250.02 | DMII WO CMP UNCNTRLD |
| 250.03 | DMI WO CMP UNCNTRLD |
| 250.10 | DMII KETO NT ST UNCNTRLD |
| 250.11 | DMI KETO NT ST UNCNTRLD |
| 250.12 | DMII KETOACD UNCONTROL |
| 250.13 | DMI KETOACD UNCONTROL |
| 250.20 | DMII HPRSM NT ST UNCNTRL |
| 250.21 | DMI HPRSM NT ST UNCNTRLD |
| 250.22 | DMII HPROSMLR UNCONTROL |
| 250.23 | DMI HPROSMLR UNCONTROL |
| 250.30 | DMII O CM NT ST UNCNTRLD |
| 250.31 | DMI O CM NT ST UNCNTRLD |
| 250.32 | DMII OTH COMA UNCONTROL |
| 250.33 | DMI OTH COMA UNCONTROL |
| 250.40 | DMII RENL NT ST UNCNTRLD |
| 250.41 | DMI RENL NT ST UNCNTRLD |
| 250.42 | DMII RENAL UNCNTRLD |
| 250.43 | DMI RENAL UNCNTRLD |
| 250.50 | DMII OPHTH NT ST UNCNTRL |
| 250.51 | DMI OPHTH NT ST UNCNTRLD |
| 250.52 | DMII OPHTH UNCNTRLD |
| 250.53 | DMI OPHTH UNCNTRLD |
| 250.60 | DMII NEURO NT ST UNCNTRL |
| 250.61 | DMI NEURO NT ST UNCNTRLD |
| 250.62 | DMII NEURO UNCNTRLD |
| 250.63 | DMI NEURO UNCNTRLD |
| 250.70 | DMII CIRC NT ST UNCNTRLD |
| 250.71 | DMI CIRC NT ST UNCNTRLD |
| 250.72 | DMII CIRC UNCNTRLD |
| 250.73 | DMI CIRC UNCNTRLD |
| 250.80 | DMII OTH NT ST UNCNTRLD |
| 250.81 | DMI OTH NT ST UNCNTRLD |
| 250.82 | DMII OTH UNCNTRLD |
| 250.83 | DMI OTH UNCNTRLD |
| 250.90 | DMII UNSPF NT ST UNCNTRL |
| 250.91 | DMI UNSPF NT ST UNCNTRLD |
| 250.92 | DMII UNSPF UNCNTRLD |
| 250.93 | DMI UNSPF UNCNTRLD |
| ICD-10 | |
| E10.10 | Type 1 diabetes mellitus with ketoacidosis without coma |
| E10.11 | Type 1 diabetes mellitus with ketoacidosis with coma |
| E10.21 | Type 1 diabetes mellitus with diabetic nephropathy |
| E10.22 | Type 1 diabetes mellitus with diabetic chronic kidney disease |
| E10.29 | Type 1 diabetes mellitus with other diabetic kidney complication |
| E10.311 | Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema |
| E10.319 | Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema |
| E10.3211 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye |

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|----------|---|
| E10.3212 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye |
| E10.3213 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral |
| E10.3219 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye |
| E10.3291 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye |
| E10.3292 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye |
| E10.3293 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral |
| E10.3299 | Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye |
| E10.3311 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye |
| E10.3312 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye |
| E10.3313 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral |
| E10.3319 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye |
| E10.3391 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye |
| E10.3392 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye |
| E10.3393 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral |
| E10.3399 | Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye |
| E10.3411 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye |
| E10.3412 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye |
| E10.3413 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral |
| E10.3419 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye |
| E10.3491 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye |
| E10.3492 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye |
| E10.3493 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral |
| E10.3499 | Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye |
| E10.3511 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye |
| E10.3512 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye |
| E10.3513 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral |
| E10.3519 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye |
| E10.3521 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye |
| E10.3522 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye |

SUPPLEMENTARY DATA

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|----------|---|
| E10.3523 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral |
| E10.3529 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye |
| E10.3531 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye |
| E10.3532 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye |
| E10.3533 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral |
| E10.3539 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye |
| E10.3541 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye |
| E10.3542 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye |
| E10.3543 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral |
| E10.3549 | Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye |
| E10.3551 | Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, right eye |
| E10.3552 | Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, left eye |
| E10.3553 | Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral |
| E10.3559 | Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye |
| E10.3591 | Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye |
| E10.3592 | Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye |
| E10.3593 | Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral |
| E10.3599 | Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye |
| E10.36 | Type 1 diabetes mellitus with diabetic cataract |
| E10.37X1 | Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye |
| E10.37X2 | Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye |
| E10.37X3 | Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral |
| E10.37X9 | Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye |
| E10.39 | Type 1 diabetes mellitus with other diabetic ophthalmic complication |
| E10.40 | Type 1 diabetes mellitus with diabetic neuropathy, unspecified |
| E10.41 | Type 1 diabetes mellitus with diabetic mononeuropathy |
| E10.42 | Type 1 diabetes mellitus with diabetic polyneuropathy |
| E10.43 | Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy |
| E10.44 | Type 1 diabetes mellitus with diabetic amyotrophy |
| E10.49 | Type 1 diabetes mellitus with other diabetic neurological complication |
| E10.51 | Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene |
| E10.52 | Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene |
| E10.59 | Type 1 diabetes mellitus with other circulatory complications |
| E10.610 | Type 1 diabetes mellitus with diabetic neuropathic arthropathy |
| E10.618 | Type 1 diabetes mellitus with other diabetic arthropathy |
| E10.620 | Type 1 diabetes mellitus with diabetic dermatitis |
| E10.621 | Type 1 diabetes mellitus with foot ulcer |
| E10.622 | Type 1 diabetes mellitus with other skin ulcer |
| E10.628 | Type 1 diabetes mellitus with other skin complications |

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| E10.630 | Type 1 diabetes mellitus with periodontal disease |
| E10.638 | Type 1 diabetes mellitus with other oral complications |
| E10.641 | Type 1 diabetes mellitus with hypoglycemia with coma |
| E10.649 | Type 1 diabetes mellitus with hypoglycemia without coma |
| E10.65 | Type 1 diabetes mellitus with hyperglycemia |
| E10.69 | Type 1 diabetes mellitus with other specified complication |
| E10.8 | Type 1 diabetes mellitus with unspecified complications |
| E10.9 | Type 1 diabetes mellitus without complications |
| E11.00 | Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC) |
| E11.01 | Type 2 diabetes mellitus with hyperosmolarity with coma |
| E11.21 | Type 2 diabetes mellitus with diabetic nephropathy |
| E11.22 | Type 2 diabetes mellitus with diabetic chronic kidney disease |
| E11.29 | Type 2 diabetes mellitus with other diabetic kidney complication |
| E11.311 | Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema |
| E11.319 | Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema |
| E11.329 | Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema |
| E11.331 | Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema |
| E11.339 | Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema |
| E11.341 | Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema |
| E11.349 | Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema |
| E11.351 | Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema |
| E11.352 | Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula |
| E11.353 | Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula |
| E11.354 | Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment |
| E11.355 | Type 2 diabetes mellitus with stable proliferative diabetic retinopathy |
| E11.359 | Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema |
| E11.36 | Type 2 diabetes mellitus with diabetic cataract |
| E11.37 | Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment |
| E11.39 | Type 2 diabetes mellitus with other diabetic ophthalmic complication |
| E11.40 | Type 2 diabetes mellitus with diabetic neuropathy, unspecified |
| E11.41 | Type 2 diabetes mellitus with diabetic mononeuropathy |
| E11.42 | Type 2 diabetes mellitus with diabetic polyneuropathy |
| E11.43 | Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy |
| E11.44 | Type 2 diabetes mellitus with diabetic amyotrophy |
| E11.49 | Type 2 diabetes mellitus with other diabetic neurological complication |
| E11.51 | Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene |
| E11.52 | Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene |
| E11.59 | Type 2 diabetes mellitus with other circulatory complications |
| E11.610 | Type 2 diabetes mellitus with diabetic neuropathic arthropathy |
| E11.618 | Type 2 diabetes mellitus with other diabetic arthropathy |
| E11.620 | Type 2 diabetes mellitus with diabetic dermatitis |
| E11.621 | Type 2 diabetes mellitus with foot ulcer |
| E11.622 | Type 2 diabetes mellitus with other skin ulcer |
| E11.628 | Type 2 diabetes mellitus with other skin complications |
| E11.630 | Type 2 diabetes mellitus with periodontal disease |
| E11.638 | Type 2 diabetes mellitus with other oral complications |
| E11.641 | Type 2 diabetes mellitus with hypoglycemia with coma |
| E11.649 | Type 2 diabetes mellitus with hypoglycemia without coma |

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| E11.65 | Type 2 diabetes mellitus with hyperglycemia |
| E11.69 | Type 2 diabetes mellitus with other specified complication |
| E11.8 | Type 2 diabetes mellitus with unspecified complications |
| E11.9 | Type 2 diabetes mellitus without complications |
| E13.00 | Other specified diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC) |
| E13.01 | Other specified diabetes mellitus with hyperosmolarity with coma |
| E13.10 | Other specified diabetes mellitus with ketoacidosis without coma |
| E13.11 | Other specified diabetes mellitus with ketoacidosis with coma |
| E13.21 | Other specified diabetes mellitus with diabetic nephropathy |
| E13.22 | Other specified diabetes mellitus with diabetic chronic kidney disease |
| E13.29 | Other specified diabetes mellitus with other diabetic kidney complication |
| E13.311 | Other specified diabetes mellitus with unspecified diabetic retinopathy with macular edema |
| E13.319 | Other specified diabetes mellitus with unspecified diabetic retinopathy without macular edema |
| E13.321 | Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema |
| E13.329 | Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema |
| E13.331 | Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema |
| E13.339 | Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema |
| E13.341 | Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema |
| E13.349 | Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema |
| E13.351 | Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema |
| E13.352 | Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula |
| E13.353 | Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula |
| E13.354 | Other specified diabetes mellitus with proliferative diabetic retinopathy with combination traction retinal detachment and rhegmatogenous retinal detachment |
| E13.355 | Other specified diabetes mellitus with stable proliferative diabetic retinopathy |
| E13.359 | Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema |
| E13.36 | Other specified diabetes mellitus with diabetic cataract |
| E13.37 | Other specified diabetes mellitus with diabetic macular edema, resolved following treatment |
| E13.39 | Other specified diabetes mellitus with other diabetic ophthalmic complication |
| E13.40 | Other specified diabetes mellitus with diabetic neuropathy, unspecified |
| E13.41 | Other specified diabetes mellitus with diabetic mononeuropathy |
| E13.42 | Other specified diabetes mellitus with diabetic polyneuropathy |
| E13.43 | Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy |
| E13.44 | Other specified diabetes mellitus with diabetic amyotrophy |
| E13.49 | Other specified diabetes mellitus with other diabetic neurological complication |
| E13.51 | Other specified diabetes mellitus with diabetic peripheral angiopathy without gangrene |
| E13.52 | Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene |
| E13.59 | Other specified diabetes mellitus with other circulatory complications |
| E13.610 | Other specified diabetes mellitus with diabetic neuropathic arthropathy |
| E13.618 | Other specified diabetes mellitus with other diabetic arthropathy |
| E13.620 | Other specified diabetes mellitus with diabetic dermatitis |
| E13.621 | Other specified diabetes mellitus with foot ulcer |
| E13.622 | Other specified diabetes mellitus with other skin ulcer |

SUPPLEMENTARY DATA

| | |
|---------|---|
| E13.628 | Other specified diabetes mellitus with other skin complications |
| E13.630 | Other specified diabetes mellitus with periodontal disease |
| E13.638 | Other specified diabetes mellitus with other oral complications |
| E13.641 | Other specified diabetes mellitus with hypoglycemia with coma |
| E13.649 | Other specified diabetes mellitus with hypoglycemia without coma |
| E13.65 | Other specified diabetes mellitus with hyperglycemia |
| E13.69 | Other specified diabetes mellitus with other specified complication |
| E13.8 | Other specified diabetes mellitus with unspecified complications |
| E13.9 | Other specified diabetes mellitus without complications |